Work	Orde	r ID	61295

Friday, August 13, 2010 12:52:01 PM



Page 1

Item ID:

D206-667-103

Accept

Setup Start

Stop



**Revision ID:** 

Item Name: Start Date:

Crosstube Fwd

8/16/2010

Start Qty: 1.00 Req'd Qty: 1.00

Date:

**Cust Item ID:** 

**Customer:** 

Reference:

Required Date: 8/30/2010

Approvals:

Process Plan: MF Date: 10-8-13 Tooling:

SPC (Y/N):

Run

Start



Date:

Stop

Sequence ID/ Work Center ID Operation Description

**Revision Nbr** 

Set Up/ **Run Hours**  Tool ID

Tool # Plan Code

Reject Accept Qty Qty

Reject Number

Insp. Stamp

**Draw Nbr** 

D206-667-143 Rev C

DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-103 CHG004

110

Packaging Packaging

Pick Kit

Packaging

Memo

0.00

0.00

& MB 10-08-31

120

CNC Bend 2

**BENDING MACHINE - CROSSTUBES** 

Memo

0.00

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-143 using CNC bender program

Q MB 10-08-31

Dait Aci	ospace i	_tu		,					
W/O:			WO	RK ORDER CHANGE	S				
DATE	STEP	PR	PROCEDURE CHANGE			Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	•	PAR #:	Fault Categ	jory:	NCR: Yes	No DG	)A:	Date: _	
	Res	solution:	Disposition	:	QA: N/C CI	osed:		Date: _	
NCR:			WORK ORDE	R NON-CONFORMAL	NCE (NCF	R)			
		Description of NC	Corrective Action S		ı B	Verification		Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date		tion C	Chief Eng	QC Inspector
				•					
								!	

# Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM



Page 2

Item ID:

D206-667-103

Accept

Setup Start

Stop



Revision ID:

Item Name:

Crosstube Fwd

**Start Date:** 8/16/2010

Operation

Description

Start Qty: 1.00

Req'd Qty: 1.00



Cust Item ID:

**Customer:** 

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

Required Date: 8/30/2010

Date:

SPC (Y/N):

Set Up/

**Run Hours** 

Date:

Tool ID

Tool # Plan

Code

Accept Qty

Reject Qty

Stop

Reject Number Stamp

Insp.

Sequence ID/ Work Center ID

QC

Memo

QC15- Crosstube Dimensional Check

0.00

Quality Control

, **3** 

W/O:			W	ORK ORDER CHANG	SES				
DATE	STEP	PRO	OCEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	•	PAR #:	Fault Cat	egory:	_ NCR: Ye	s No <b>DQ</b>	A:	Date: _	
	R	esolution:	Dispositi	on:	QA: N/C	Closed:	·	Date: _	
NCR:		•	WORK ORI	DER NON-CONFORM	ANCE (NO	R)			
DATE	STEP	Description of NC	Initial	Corrective Action Sec Action Description	tion B		cation	Approval	Approval
		Section A	Chief Eng	Chief Eng	Da		ion C	Chief Eng	QC Inspector
			!						
	}								
			}						-

Friday, August 13, 2010 12:52:01 PM

Page 3

Item ID:

D206-667-103

Accept



Setup Start



**Revision ID:** 

Item Name:

Crosstube Fwd

**Start Date:** 

Required Date: 8/30/2010

8/16/2010

Start Qty: 1.00

Req'd Qty: 1.00

Date: \_\_\_\_\_

**Cust Item ID:** 

**Customer:** 

Reference:

A	D	D	r	ЭV	a	s:

Process Plan: Date: Tooling:

SPC (Y/N):

Date:

Date:

Run

Stop

Start

Stop



Sequence ID/ **Work Center ID** 

140

Crosstubes Crosstubes

Crosstubes

Operation **Description** 

QC: \_\_\_\_\_

Set Up/ **Run Hours**  Tool ID

Tool # Plan Code

Accept Qty

Reject Qty

Reject Number

Insp. Stamp

Memo

0.00

0.00

1-Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667 143. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-143. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.

9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143 Inside of Cuff(Donot engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

W/O:			WO	RK ORDER CHANGI	ES			<u> </u>	
DATE	STEP	PRO	OCEDURE CHAI	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No		PAR #:	Fault Cate	Jory:	NCR: Yes	No <b>DQ</b>	A:	Date: _	
	Res	olution:	Disposition	n:	QA: N/C CI	osed:		Date: _	
NCR:			WORK ORDE	R NON-CONFORMA	NCE (NCF	R)			
DATE	OTED	Description of NC		Corrective Action Section		Verific	ication	Approval Chief Eng	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description  Chief Eng	Sign 8 Date		ion C		QC Inspector
					į				

#### Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM



Page 4

Item ID:

D206-667-103

Accept

Setup Start

Stop

Stop



**Revision ID:** 

Item Name:

Crosstube Fwd

**Start Date:** 8/16/2010

Required Date: 8/30/2010

Start Qty: 1.00

Req'd Qty: 1.00



**Cust Item ID:** 

**Customer:** 

Tool ID

Reference:

Approvals:

Process Plan:

Date: \_\_\_\_\_ Tooling:

Date:\_\_\_\_

Run Start



QC:

Date:\_\_\_\_

SPC (Y/N):

Set Up/

Run Hours

Date:

Tool # Plan Code

Accept Qty

Reject

Insp. Stamp

**Work Center ID** 

150

Sequence ID/

HandFXtube

Hand Finishing Crosstubes

Operation Description

Crosstubes Chemical Conversion

Memo

0.00

0.00

Reject Qty Number

160

QC Quality Control QC3- Inspect Part Finish

Memo

0.00

0.00

170

QC

Memo

QC5- Inspect part completeness to step on W/O

0.00

Quality Control

0.00

W/O:			W	ORK ORDER CHANG	ES				
DATE	STEP	PRO	OCEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
			_						
Part No	•	PAR #:	Fault Cat	egory:	_ NCR: Yes	No DQA	\:	_ Date: _	
	Re	esolution:	Disposition	on:	QA: N/C CI	osed:		Date: _	
NCR:			WORK ORD	ER NON-CONFORM	ANCE (NCF	<b>(1)</b>			
DATE	STEP	Description of NC			tion B	Verification		Approval	Approval
	JIL.	Section A	Initial Chief Eng	Action Description Chief Eng	Sign 8 Date	Section	on C	Chief Eng	QC Inspector
i									
	ļ	1						1	1

#### Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM



Page 5

Item ID:

D206-667-103

Accept

Setup Start

Stop



Revision ID:

**Start Date:** 

Item Name:

Crosstube Fwd

8/16/2010

Start Oty: 1.00

Req'd Qty: 1.00 Required Date: 8/30/2010

Date: \_\_\_\_\_

**Cust Item ID: Customer:** 

Tool ID

Reference:

Approvals:

Process Plan: Date:

QC: \_\_\_\_

Tooling:

SPC (Y/N):

Date:

Date:

Qty

Run

Stop

Start

Sequence ID/ Work Center ID

180

Outsource2

Outsource process - NDT

Operation Description

Outsource process - NDT per OSI038 4.1

Set Up/ **Run Hours** 

P/0.12504

0.00

Code

Tool # Plan

Reject Accept Qty

Reject Number

Insp. Stamp

**CROSSTUBES** 

QC5- Inspect part completeness to step on W/O

Memo

0.00

Packaging Packaging

Packaging

Memo

0.00

Ensure copy of NDT results attached to work order.

10/9/3 ()

CZ 10/9/03 10

200

190

Memo

0.00

0.00

MM 10 09 08 (1)

Quality Control

Dart Aerospace L
------------------

W/O:			WO	RK ORDER CHANG	ES				
DATE	STEP	PRO	OCEDURE CHAI	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	•	PAR #:	Fault Cate	gory:	_ NCR: Yes	No <b>DQA</b>	۱:	Date:	
		esolution:							
NCR:		,	WORK ORDE	R NON-CONFORMA	ANCE (NCR	)			
DATE	STEP	Description of NC		Corrective Action Section B			ation	Approval	Approval
DAIL	O.L.	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section	on C	Chief Eng	QC Inspector
									:

	•		
Work	Order	ID	61295

Friday, August 13, 2010 12:52:01 PM



Page 6

Item ID:

D206-667-103

Accept

Setup Start

Stop



**Revision ID:** 

Item Name: **Start Date:** 

Required Date: 8/30/2010

Crosstube Fwd

8/16/2010

Start Qty: 1.00

**Req'd Qty:** 1.00



Cust Item ID:

**Customer:** 

Tool ID

Reference:

Approvals:

Process Plan: Date:

QC: Date:

Tooling:

SPC (Y/N):

Set Up/

**Run Hours** 

Date:

Date:

Code

Tool # Plan

Stop

Reject

Qty

Start

Run

Accept

Qty

Number Stamp

Insp.

Reject

Sequence ID/

**Work Center ID** 

210

SprayPaint Spray Painting SprayPaint

Operation

**Description** 

0.00

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per OSI 005 4.2

PRIME:

Memo

Start Time: 8130 Fininsh Time: 9:30

PAINT:

Memo

Start Time: 2:30 Finish Time: 3:30

220

QC14- Inspect Spray Paint

& idoglog

Quality Control

Wrap in plastic bag to protect from scratches

W/O:			W	ORK ORDER CHANGE	ES				
DATE	STEP	PRO	CEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No		PAR #:							
	Re	esolution:						Date:	
NCR:		\	WORK ORE	DER NON-CONFORMA	NCE (NC	₹)			
DATE	STEP	Description of NC	Initial	Corrective Action Section Action Description	on B Sign o		Verification Approva		Approval
		Section A	Chief Eng	Chief Eng	Date		ion C	Chief Eng	QC Inspector
									!
	1							ł	}
				·	į				

#### Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM



Page 7

Item ID:

D206-667-103

Accept

Setup Start

Stop



**Revision ID:** 

Item Name:

Crosstube Fwd

**Start Date:** 8/16/2010

**Required Date: 8/30/2010** 

Start Qty: 1.00

Req'd Qty: 1.00

**Cust Item ID:** 

Customer:

Tool ID

Reference:

Approvals:

Process Plan:

Date: \_\_\_\_\_

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Start



Run

Stop

Sequence ID/ Work Center ID

230

Operation **Description** 

Crosstubes

Set Up/ **Run Hours** 

0.00

Tool # Plan Code

Accept **Qty** 

Reject Qty

Reject Number

Insp. Stamp

Crosstubes

Crosstubes

Memo

0.00

(ASSEMBLE AS PER DWG D206-667-143)

1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (2) Aft

holes should be facing up.

A/R Magnobond 6398: 114158 248! 01 2011

2-Install supports and clamps as per Dwg D206-667-143. Torque clamps to 80-

3-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron

ET 10-09-10

240

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

W/O:	-		WO	RK ORDER CHANGE	S				
DATE	STEP	PRO	PROCEDURE CHANGE			Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	•	PAR #:	Fault Cated	aory:	NCR: Yes	No <b>DQA</b> :	:	Date:	
		esolution:							
NCR:			WORK ORDE	R NON-CONFORMA	NCE (NCF	3)			
DATE	STEP	Description of NC	Initial	Corrective Action Section Action Description	n B Sign 8	Verifica		Approval	Approval
		Section A	Chief Eng	Chief Eng	Date	Section	n C	Chief Eng	QC Inspector

#### Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM



Page 8

Item ID:

D206-667-103

Accept

Setup Start



**Revision ID:** 

Item Name:

Required Date: 8/30/2010

Crosstube Fwd

**Start Date:** 

8/16/2010

Start Qty: 1.00

**Req'd Qty:** 1.00

**Cust Item ID:** 

**Customer:** 

Reference:

Approvals:

Process Plan: Date: Tooling:

SPC (Y/N):

Date: \_\_\_\_\_

Date:

Run

Start

Stop

Stop



Sequence ID/

Work Center ID

250

Packaging

Packaging

Operation Description

Pick Kit

Memo

Memo

QC: \_\_\_\_\_ Date: \_\_\_\_

Set Up/ **Run Hours** 

0.00

0.00

Tool ID

Tool # Plan Code

Accept Qty

Reject

Reject

Insp. Number Stamp

260

QC

Quality Control

QC4-100% Inspect kits for completeness

0.00

0.00

000 510/08/13

270

Packaging Packaging

Packaging

Memo

Identify and pack for shipping as per PPP D206-667-103

Location:

PPP Rev:

W/O:			W	ORK ORDER CHANGES	S				
DATE	STEP	PRO	OCEDURE CHA	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
<del></del>								Frod Wgr	,
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No <b>DQ</b>	<b>\</b> :	Date: _	
	R	esolution:	Disposition	on:	QA: N/C Cld	sed:		Date:	
NCR:			WORK ORD	ER NON-CONFORMAN	ICE (NCR	)			14 <sub>0</sub> - 1 <sub>9</sub> 11,
DATE	STEP	Description of NC		Corrective Action Section		Verific		Approval	Approval
DAIL	SILF	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section	on C	Chief Eng	QC Inspector
								<del> </del> 	
								\$ } }	
				·					
	<del>-</del>		<del></del>					<u> </u>	

#### Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM



Page 9

Item ID:

D206-667-103

Accept

Setup Start

Stop



**Revision ID:** 

**Start Date:** 

**Item Name:** 

Required Date: 8/30/2010

Crosstube Fwd

8/16/2010

Start Qty: 1.00 Req'd Qty: 1.00

Operation

**Description** 

**Cust Item ID:** 

**Customer:** 

Reference:

Approvals:

Process Plan:

Date: \_\_\_\_\_ Tooling:

Date:

Start



QC: \_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N):

Set Up/

**Run Hours** 

Date:

Stop



Sequence ID/

**Work Center ID** 

280

QC

Memo

QC21- Final Inspection - Work Order Release

0.00

Tool ID

Tool # Plan Accept Qty Code

Reject Qty

Run

Reject Number

Insp. Stamp

Quality Control

0.00

W/O:			WORK ORDER CHANGES										
DATE	STEP	PRO	CEDURE CHAN	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector				
								· rod mg					
	:												
Part No		PAR #:	Fault Categ	ory:	NCR: Yes	No <b>DQ</b>	A:	Date:					
			Disposition: Q			QA: N/C Closed:							
NCR:		1	WORK ORDE	R NON-CONFORMA	NCE (NCR	)							
DATE	STEP	Description of NC			Section B  ion Sign & Section			Approval	Approval				
DAIL	JILF	Section A	Initial Chief Eng	Action Description Chief Eng	Date	Sect	ion C	Chief Eng	QC Inspector				
*.													
				15-11									
ı													
l					1								

#### **Picklist Print**

Friday, August 13, 2010 12:52:00 PM

Work Order ID: 61295

Parent Item:

D206-667-103

Parent Item Name: Crosstube Fwd



Start Date: 8/16/2010

Required Date: 8/30/2010

Page 1

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:F□05.09.01 □ Add holes for compatibility with Bell Skidtubes □ KJ/JLM

IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:

IPP Rev: H 08.11.17 QC5 was QC6 at step 12 KJ verified by: EC

IPP Rev:I 08-12-15 add magnobond DD verified by:EC IPP Rev J 09.01.06 ECN 08-562 EC verified by: DD IPP Rev:K 09-01-19 as per DSI9439 DD verified by:EC

	Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
5	AN5-30A	<u> </u>	Purchased	No			250	Each	110.0000	4	, 4		L	

BOLI

	Location	Lo	c Qty	Loc Code	
	ST339		110		
	102473		4		
	105144		10		
	112933		21		
	114437		25		
	114941		• 50		
No		250	Each	232.0000	4

Purchased

Locatio	<u>n</u>	Loc Qty	Loc Code
ST340		232	
	113121	4	
	114056	74	
	114405	50	
	115016	50	
	115108	50	
	15072	4	

M114086

W/O:		WORK ORDER CHANGES										
DATE	STEP	PRO	OCEDURE CHA	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector			
· · · · ·												
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No <b>DQ</b>	A:	Date:				
			Disposition: Q			QA: N/C Closed: Date:						
NCR:			WORK ORDI	ER NON-CONFORMA	NCE (NC	₹)			·			
DATE	STEP	Description of NC		Corrective Action Section B Initial Action Description			ication	Approval	Approvai			
		Section A	Chief Eng	Chief Eng	Sign of Date		ion C	Chief Eng	QC Inspector			
		·										

Friday, August 13, 2010 12:52:00 PM

Work Order ID: 61295  Parent Item: D206-667-103										
Parent Item Name: Crosstube Fwd			BIS (1814 89148 8111   18819 91148 81111 10	<b>18:   1888:   18   88  18</b>      1			tart Date: 8 Start Qty: 1		Required D	Date: 8/30/2010 Qty: 1.00
AN5-7A	Purchased	No		250	Each	200.0000	10	/ 10 ~		
			<b>Location</b>	j	Loc Qty	Loc Code				
			ST337		200					
			100826		10				-	
			109061		4			~ / J 3 i .	. a	
AN969JD516 NAS1149D05631		2.7	113149		186			19/1/3/	77	1
THE PARTY AND BE THE BUILD BOOK OF THE BUILD BOO	Purchased	No		250	Each	34.0000	18	18		
Washer								MILY	772	
			<b>Location</b>	ļ	Loc Qty	Loc Code				
			ST		34				_	
			103694		18				_	
			107534		12				-	
_AN970-4	D 1	No	109287	250	4	02 0000				1
<u> </u>	Purchased	NO		230	Each	82.0000	12    <b>    </b>	1 12 🔾		
Washer										// (0/1 <sup>/</sup> /
			<u>Location</u>	<u>]</u>	Loc Qty	Loc Code				,
			ST349		82				-	
			112991		32			0.112	-1 /	
D206-667-103TRN	M C . 1	NT-	115266	110	50			m113a	١٥٤	
	Manufactured	No		. 110	Each	2.0000	1 	1		•
Crosstube Turning DetailL								SAA	10-(	08-30
			Location	]	Loc Oty	Loc Code				
			FG		1				_	
			60143		1				-	
			60144		1				_	
			LG		1				-	
F:1 4 4 12 2010 12 52 62 PM		<del></del>	36143					<b>→</b>		
Friday, August 13, 2010 12:52:00 PM			Shop	Packet Prin	ıt					Page 2

	paoc								
W/O:			ES						
DATE	STEP	PRO	PROCEDURE CHANGE			Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	:	PAR #:	Fault Categ	jory:	_ NCR: Yes	No DQ	<b>A</b> :	_ Date: _	
Resolution:		Disposition	<b>):</b>	_ QA: N/C CI	osed:		Date: _		
NCR:			WORK ORDE	R NON-CONFORM	ANCE (NCF	R)			
DATE	OTED	Description of NC	<u> </u>		verii			Approval	Approvai
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign 8 Date	Sect	ion C	Chief Eng	QC Inspector

#### **Picklist Print**

Friday, August 13, 2010 12:52:00 PM

Page 3

Work Order ID: 61295 Parent Item:

D206-667-103

Parent Item Name: Crosstube Fwd



**Start Date: 8/16/2010** 

Required Date: 8/30/2010

Start Qty: 1.00

Required Qty: 1.00

D2873-043



Nut Plate Assembly

Manufactured

230

Each

Loc Code

32.0000

Manufactured No

Manufactured

56466 57337

53966

Location

LG

230

10 2 20 Each

32

Loc Qty

28.0000

()-09-()

Nut Plate Assembly

D2873-045

D2891-1

2.25 Support

Location	<u>Lo</u>	oc Qty
LG		28
53968		9
57336_		19
	230	Each

69.0000

Loc Code

ml 10.09.09

<u>Location</u>	Loc Oty	Loc Code	
LG	69		
46159	15		
50952	18		
53347	4		
53773	20		
55786	12		

W/O:		WORK ORDER CHANGES											
DATE	STEP	PRO	OCEDURE CHAN	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector				
								r rod Mgr					
									<u> </u>				
									,				
Part No	•	PAR #:	Fault Categ	ory:	_ NCR: Yes	No DQA	\:	Date:	L				
			Disposition: QA										
NCR:			WORK ORDER NON-CONFORMANCE (NCR)  Corrective Action Section B										
DATE	STEP	Description of NC		ion B	Verific		Approval	Approval					
DAIL	SILF	Section A	Initial Chief Eng	Initial Action Description Chief Eng Chief Eng		Sign & Section C		Chief Eng	QC Inspector				

r'a.	1 1		T	4
Pi	cki	ist	Prin	t

Friday, August 13, 2010 12:52:00 PM

Page 4

Work Order ID: 61295

Parent Item:

D206-667-103

Parent Item Name: Crosstube Fwd



**Start Date: 8/16/2010** 

Required Date: 8/30/2010

Start Qty: 1.00

Required Qty: 1.00

D3595-063-395

Manufactured

No

230

Loc Qty

Each 46.0000 m 10.8.09

**RUBBER CUSHION** 

RUBBER CUSHION .63" x 3.95" (4)

MS20601-AD4W8

Purchased No FP 10 44667 10 ST 36 36 60585

> Each 286,0000

14

14

RIVET

230

Loc Code

Location ST322

Location

286 108521 98 112203 188 250 Each Loc Code

734.0000

Zafr/13 (1)

	MS21042L5
5	
	Nut

Purchased No

> Location Loc Qty ST139 234 114813 234 ST300 500 115156 500

Loc Code

M114813

W/O:			WO	RK ORDER CHANGE	ES				
DATE	STEP	PRO	OCEDURE CHAN	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
•									
				•					
			······································						
Part No	:	PAR #:	Fault Categ	ory:	NCR: Yes	No DQ	<b>A:</b>	Date:	
	R	esolution:	Disposition	:	QA: N/C CI	osed:		Date: _	
NCR:			WORK ORDE	R NON-CONFORMA	NCE (NCF	R)			
DATE	CTED	Description of NC		Corrective Action Section		Verific	ation	Approval Chief Eng	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	k Secti			QC Inspector
	1	)							1

#### **Picklist Print**

Friday, August 13, 2010 12:52:00 PM

Page 5

Work Order ID: 61295

Parent Item:

D206-667-103

Parent Item Name: Crosstube Fwd



**Start Date:** 8/16/2010

Required Date: 8/30/2010

Start Qty: 1.00

Required Qty: 1.00

MS21920-20



Clamp (per MIL-DTL-8783C)

Purchased

No

230

Each

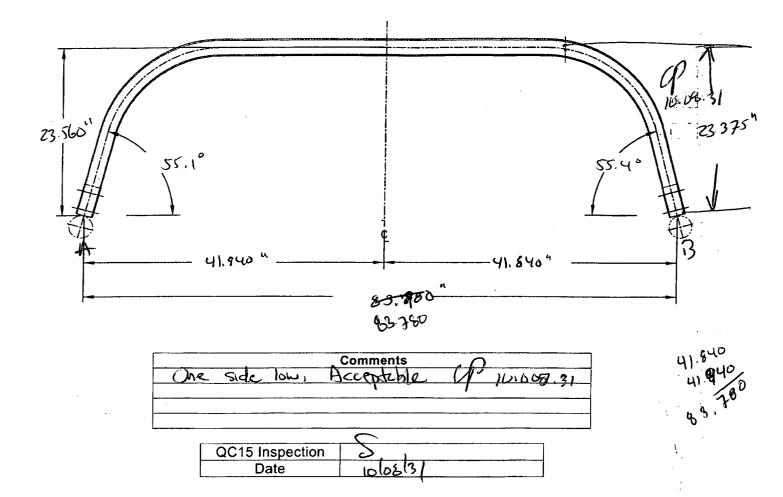
103.0000

<u>Location</u>	Loc Qty	Loc Code	
LG	103		
112624	18		
114687	35		
114779	24		
115057	26		

W/O:	-		W	ORK ORDER CHANGE	S				
DATE	STEP	PRC	CEDURE CHA	Ву	Date	Qty	Approval Chief Eng /	Approval QC Inspector	
								Prod Mgr	QO IIISpector
Part No	:	PAR #:	Fault Cate	eqory:	NCR: Yes 1	No DQ	A:	Date:	
		esolution:							
NCR:				ER NON-CONFORMA					
		Description of NC		n B	Verification			Approval	
DATE	STEP	Section A	Initial Action Description Chief Eng Chief Eng		Sign & Date	Sign &   Section C		Approval Chief Eng	QC Inspector
									-
								1	
	}		i I					1	1

DART AEROSPACE LTD	Work Order:	61295
Description: Crosstube High Fwd (206L)	Part Number:	D206-667-103
Inspection Dwg: D206-667-143 Rev: C		Page 1 of 1

Required Dimension	Min	Max-
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10



Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	09.06.26	Dimensions updated per Dwg Rev C	KJ	1
С	09.10.22	Minimum height dimension revised	KJ	1/2

Item	Qty -143	Part Number	Description
1	Х	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120- 023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

#### GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6002-115

FINISHED LENGTH = 104.98±0.020

FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2

- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03\* TO 0.06\* THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



3



В

С	REVISE REORG TO CUR D3595-0 REMOV	RF	08.11.06					
			(ZN A8-3) PER NCR 210; MOVED PDATED TOLERANCE TO SHEET 4.		l i			
В		DLES AND NUT	PH	05.07.26				
Α	NEW IS	SUE	CP	00.11.17				
REV.			DESCRIPTION	BY	DATE			
DESIGN		P	DART AEROSPACE LTD					
DRAWN		RF <sub>2</sub>	HAWKESBURY, ONTARIO, CANADA					
CHECKE	D	4	DRAWING NO. REV					
MFG. AF	PPR.	E 0	D206-667-143 SHEET 1 O					
APPRO\	/ED	/11/	TITLE SCAL					
DE APP	₹.	- <del></del>	CROSSTUBE ASSY (206L F	IIGH F	WD) NTS			
DATE	08.1	1.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD  THIS DOCUMENT IS PRIVATE AND COMPIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONCINCT HAS IT IS  NOT TO BE UNSO FOR ANY PURPOSE ON COMPLICACINET TO MY POTHER PERSON WITHOUT  WHITTEN PRESSESSION PRIVATOR DART ARROWS THE TOTAL OF THE PERSON WITHOUT  WHITTEN PRESSESSION PRIVATOR DART ARROWS THE PERSON WITHOUT  WHITTEN PRIVATE PRIV					

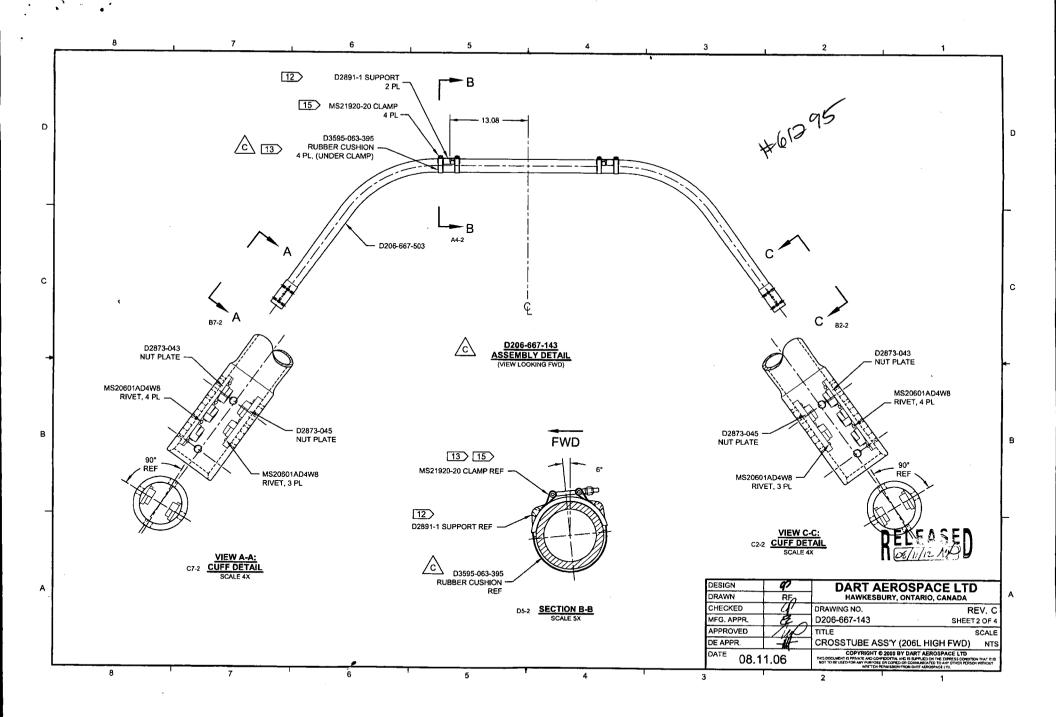
.

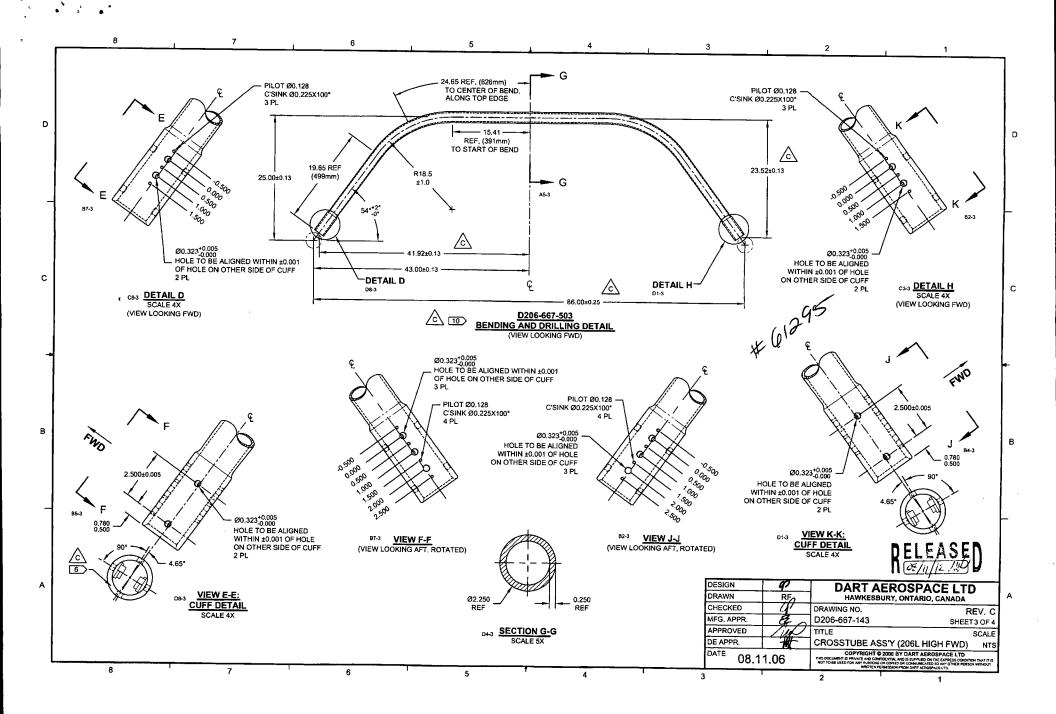
2

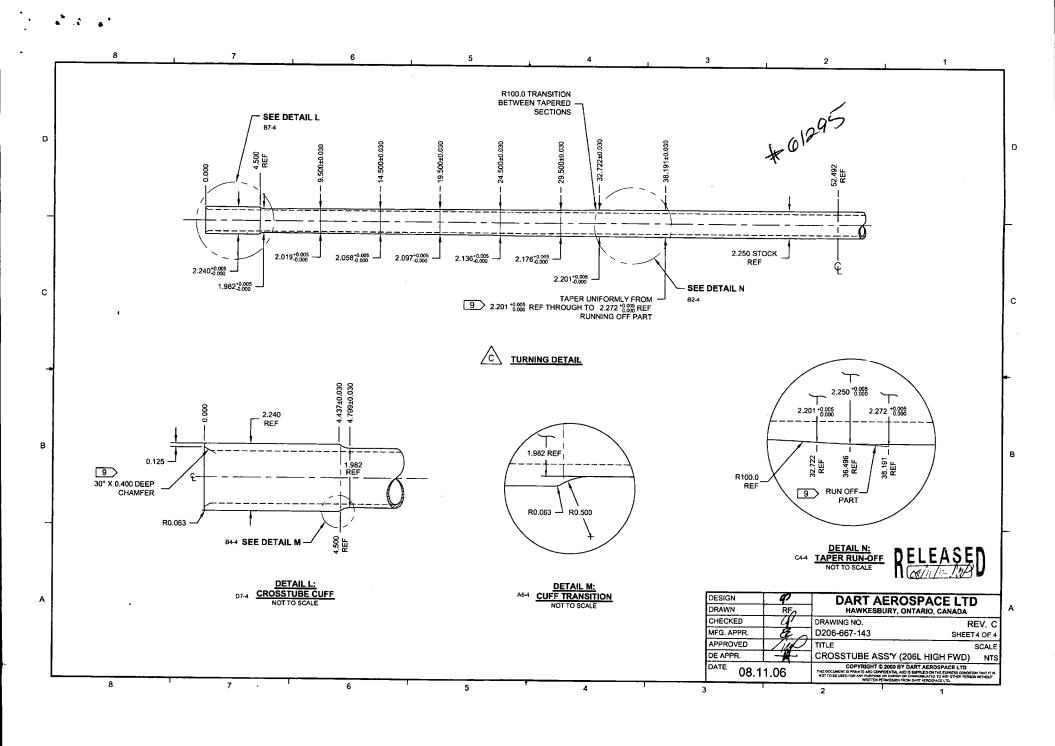
7

5

3









#### **PARTS LIST** 5.0

## REFERENCE ONLY

Item	Qty -011	Qty -013	Qty -015	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	Х									D206-667-011	SPACER BLOCK KIT
		X								D206-667-013	NUT PLATE KIT (-101/-103/-105/-203/-205)
			Х							D206-667-015	NUT PLATE KIT (-201)
		:		Х						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
					Х					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
						Х			_	D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
							Х			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
-								×		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
								<del>- ^` -</del>	X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
									_^_	0107 007 200	
1				1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2					1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3					<u>'</u>	1		<u> </u>		D206-667-143	CROSSTUBE ASSEMBLY,
3						'				B200 001 170	206L/L-1/L-3/L-4 HIGH FWD
4							1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5								1	<u> </u>	D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6						<del> </del>		<u>'</u>	1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
0									<u> </u>	B 101 001 2.10	
10				*2	*2	*2		*2		D2891-1	SUPPORT
11	_						*2	-		D2892-1	SUPPORT
12									*1	D2894-1	SUPPORT
13				*2	*2	*2		*2		D2856-400-694	ABRASION STRIP
14							*2		*2	D2856-400-773	ABRASION STRIP
15			-		<del></del>			-	*1	D2856-600-851	ABRASION STRIP
16			_	*4	*4	*4		*4	<u> </u>	MS21920-20	CLAMP
17					<u> </u>		*4	<del> </del>	*4	MS21920-22	CLAMP
18	-						-		*2	MS21920-24	CLAMP
19				4	4	4	-	4		AN5-32A 7	BOLT
20				<del>  -</del> -		<del></del>	4	<u> </u>	4	AN5-34A	BOLT
21		<del>                                     </del>		4	4	4	4	4	4	MS21042L5	' NUT (OR MS21042-5)
22		l		8	8	8	.8.	8	8.	AN960JD516	WASHER
23		<del></del>		<u> </u>	<u> </u>	<u> </u>			*2	D3190-1	CHAFING SHIELD
20		<del> </del>					-				
30	8		_		<u> </u>					AN4-6A	BOLT
31	8	<b>—</b> —	<del></del>		<u> </u>			<b>†</b>		AN4-7A	BOLT
32	16	<del> </del>	<del> </del>	<u> </u>	<del> </del>					AN960JD416	WASHER
33	2									D3193-041	SPACER BLOCK ASSEMBLY
40		<del></del>	<del>                                     </del>	*2	<b></b>	*2	*2	*2	*2	D2873-043	NUT PLATE
40_	ļ	2	-	*2	<del> </del>	*2	*2	*2	*2	D2873-045	NUT PLATE
41_	ļ	2	<del>-                                    </del>	2	2	<u>  4 </u>	<del></del>		<del></del>	D2872-043	NUT PLATE
42	<u> </u>		2	<del> </del>	2		-	-		D2872-045	NUT PLATE
43	<b>-</b>	10	<del> </del>	10	<del>                                  </del>	10	<del> </del>	<del> </del>	<del>                                     </del>	AN5-7A	BOLT
44	ļ	10	10	10	10	10	_ 10.	10	_10	AN5-10A	BOLT
45	<u> </u>	10	10		10	<u> </u>	10.	4	10	AN5-30A	BOLT
46	<u> </u>	4	4	4_	10	4	<del>                                     </del>		4	AN5-30A AN5-32A	BOLT
47		4	1-	1	12	-40	4		10-	AN960JD516	WASHER
48		18	18	10	12	/10	10	10	10-	MS21042L5	NUT (OR MS21042-5)
49		4	4		6	<u></u>	i	<u> </u>			407-667-145/245 ASSEMBLIES ABOVE

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/241/143/243, & D407-667-145/245 ASSEMBLIES ABOVE

COPYRIGHT © 2001 BY DART AEROSPACE LTD •

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Revision: C

Date: 05.07.26

## DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. C AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 2

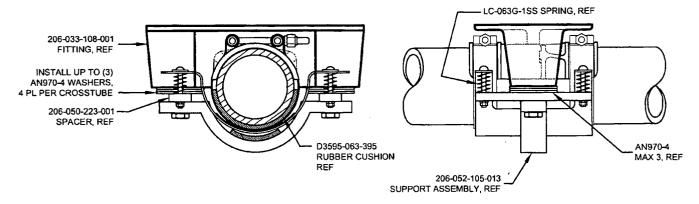
> **REF CANADIAN STC: SH01-5** REF EASA STC: EASA.IM.R.S.01179

#### PROBLEM:

FOR D206-667-103 CROSSTUBES (206L FWD) AT CHG 003 AND SUBSEQUENT (SEE DSI 9415) PROPER INSTALLATION OF THE OEM SUPPORT ASSEMBLIES MAY BE IMPOSSIBLE DUE TO THE ADDITIONAL THICKNESS OF THE DART D3595-063-395 RUBBER CUSHIONS. THE 206-052-105-013 SUPPORT ASSEMBLY (OR EQUIVALENT) MAY SIT TOO HIGH RELATIVE TO THE 206-033-108-001 FITTING, CAUSING THE LC-063G-1SS SPRING (OR EQUIVALENT) TO BE OVERLY COMPRESSED.

#### **SOLUTION:**

IT IS ACCEPTABLE TO LOWER THE SUPPORT ASSEMBLY BY INSTALLING UP TO QTY (3) AN970-4 WASHERS BETWEEN THE 206-033-108-001 FITTING (OR EQUIVALENT) AND THE 206-050-223-001 SPACER (OR EQUIVALENT). SEE FIGURE BELOW FOR REFERENCE.



#### CROSSTUBE SECTION: SUPPORT DETAIL

#### PARTS LIST:

THE FOLLOWING PARTS HAVE BEEN INCLUDED WITH D206-667-103 CROSSTUBES AT CHG 004 AND SUBSEQUENT

ITEM	Qty -103	PART NUMBER	DESCRIPTION				
; 60	12	AN970-4	WASHER				

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION **BRANCH** DAO # 01-O-01 APPROVED D. SHEPHERD (DE # 02) DATE: 08.12.17 CERT. NO.: SH01-5 ISSUE NO .: \_

Α	NEW IS	SSUE	CP	08.12.17					
REV.			DESCRIPTION	BY	DATE				
DESIGN		9	DART AEROSP	ACE	LTD				
DRAWN		9		HAWKESBURY, ONTARIO, CANADA					
CHECKE	ΞD	PH	DRAWING NO.		REV. A				
MFG. AF	PR.	N/A	DSI 9439	S	SHEET 1 OF 1				
APPRO\	/ED	-	TITLE		SCALE				
DE APPR.			206L FWD XTUBE SUPPORT MOD. N						
DATE	08.1	2.17	COPYRIGHT © 2008 BY DART AEROSPACE LTD  THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATIONE TO ANY OTHER PERSON WITHOUT WRITTEN PERSISON FROM DART AEROSPACE IT.						



#### LICHID PENETRANT TEST REPORT

P- 15188

ACUREN	LIQUID	- FIAFIIVAIAI IE	JINEFORT	•
ACONILI	. 1		PAI	GE 1 OF I
CLIENT	OF AGROSTACE	DATE	ASE 12-2010 TIN	
ATTENTION	NDA/CHANTEL	ACUREN JOB NO.		632
ADDRESS 12	TO ABENDERN STRE	<del></del>	12506	
Han	KESBULYON.	Work Location	- HAWKESBURG	1 PLANT.
	6H 1K7	ACCEPTANCE STO	ASTM 1417 RE	V./DATE 2007
PROJECT	F. F	. I, ON	CROSS TUBES	· .
ITEM(S) EXAMINED	4 Pcs.	+ 5 h	ActiNED STU	<i>D</i> 5
-				
JOB DESCRIPTION	PROCEDURE No. LT60021	REV./DATE	TECHNIQUE NO. LT-TGH 2 RE	
PART NO.	<u></u>	MATERIAL COL	INE ALUNIALIE THICKNE	ESS VAZIOUS
7	RESCENT LIQUI		STAINLESS STA	
VENETICA TEST DETAILS	HOT. LNSTEC 1101	N CARRIED O	out 100% Ex	TENNAL
TEST DETAILS METHOD	FLUORESCENT UVISIBL	E 💆 WATER WASH	☐ SOLVENT REMOVABLE	LE POST EMULSIFIED
FAMILY BRAND MAGO	VAFLUX	BLACK LIGHT S/N	/6459 🗖 OUTPUT > 1000 µ W	//cm <sup>2</sup> ☐ AMBIENT < 2 fc
PENETRANT PENETRANT REMOVER	MINIMUM DWELL TIME 4514  A MINIMUM DRY TIME >1		□ FLASHLIGHT □ TROUBLELIGHT □ -AB, NO	OUTPUT>100 fc @ SURFACE
DEVELOPER KD	MINIMUM DWELL TIME 10	0 Min. LIGHT METER S/N		AL DUE DATE OCT-19
DEVELOPER TYPE   TEST SURFACE	Non Aqueous   Aqueous	DRY		2010
	As Ground	☐ MACHINED	☐ SHOT BLASTED	☐ CLEAN BARE METAL
SURFACE TEMPERATURE	< - 4°C/ 20°F ☐ - 4°C/ 20°F T		☐ 10°C/50°F TO 52°C/125°F	□ > 52°C/125°F
RESULTS- (	METRIC   IMPERIAL)		*	
1 - Closs 741	SE OU.O. 61294 .			
1 -CRoss Tut	BE-W.O.61295 V			
]	BE-W.O. 61296 V			
	BE-W.O.61287, V			
	5-WeO.61371 V			
- L > 101/2	J. We. U. WIJ IN IV	1	<b>4.</b>	
	e de la companya del companya de la companya de la companya del companya de la co			
	· ·	Mr.	10 09-08	
Scope of Services The agreement of Acuren Group Inc. to pe	erform services extends only to those services provided for i	in writing. Under no circumstances shall su	ch services extend beyond the performance of the rec	mested services. It is expressly understood
that all descriptions, comments and expre representations or warranties. Actuen G	essions of opinion reflect the opinions or observations of Act roup Inc. is not assuming any responsibilities of the owner/o	uren Group Inc. based on information and a operator and the owner/operator retains con	ssumptions supplied by the ownerloperator and are in uplete responsibility for the engineering, manufacture	not intended nor can they be construed as
Standard of Care	wren Group Inc. In no event shall Acuren Group Inc.'s liabi	. ,	, ,	22 No. of the same and are
In performing the services provided, Acui implied, is made or intended by Acuren G	ren Group Inc. uses the degree, care and skill ordinarily exe. Froup Inc.	reised under similar circumstances by other	s performing such services in the same or sumnar ioc	ality. No other warranty, expressed or
SIGNATURES				
CLIENT REPRESENTATIVE	MATH MUROJOCH	Matter M.	model DTR#	E 77127
TECHNICIAN (SIGNATURE):	11	<u> </u>	REPORT	
NAME (PRINT):	M.KE JOHNSTON		REVIEWED BY: NAME	E INITIALS
	CGSB LEVEL SNT LEVEL CGSB REG. NO	2 <sup>10</sup> TECHNICIAN  CGSB LEVEL SNT L  CGSB REG. NO	LEVEL	
				,